

**APRIL/FY06**

**ROCK ISLAND ARSENAL**  
**Illinois**

**Army Defense Environmental  
Restoration Program  
Installation Action Plan**

Final 28 Jun 2006

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## Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations and necessary remedial actions.

In an effort to coordinate planning information between the restoration manager, US Army Environmental Center (USAEC), Rock Island Arsenal (RIA), Installation Management Agency (IMA), executing agencies, regulatory agencies, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following agencies contributed to the formulation and completion of this Installation Action Plan during a planning workshop held on 26 April 06:

**Company/Installation/Branch**

Engineering & Environment, Inc.  
Illinois Environmental Protection Agency (IEPA)  
IMA, Northwest Region  
RIA  
SAIC  
ToITest  
USACE  
USAEC

## Acronyms & Abbreviations

ACL	Alternate Concentration Limits
AEHA	US Army Environmental Hygiene Agency
AST	Aboveground Storage Tank
AEDBR	Army Environmental Database - Restoration
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CRP	Community Relations Plan
EE/CA	Engineering Evaluation / Cost Analysis
EOD	Explosive Ordnance Division
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
FS	Feasibility Study
FY	Fiscal Year
GWCI	Groundwater Classification Investigation
IAP	Installation Action Plan
IEPA	Illinois Environmental Protection Agency
IRA	Interim Remedial Action
IRP	Installation Restoration Program
JMC	Joint Munitions Command
K	Thousand
LNAPL	Light Non-aqueous Phase Liquid
LTM	Long Term Management
MC	Munitions Constituents
MCL	Maximum Contaminant Level
MEC	Munitions Explosives of Concern
MMRP	Military Munitions Response Program
NE	Not Evaluated
NFA	No Further Action
NHL	National Historic Landmark
NRHP	National Register of Historic Places
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
OB/OD	Open Burn/Open Detonation
PA	Preliminary Assessment
PNA	Polynuclear Aromatics
POL	Petroleum, Oil & Lubricants
POTW	Publicly Owned Treatment Works
RA	Remedial Action
RA(C)	Remedial Action - Construction
RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
REM	Removal

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## Acronyms & Abbreviations

RI	Remedial Investigation
RIA	Rock Island Arsenal
RIP	Remedy in Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
SWMU	Solid Waste Management Unit
SVE	Soil Vapor Extraction
SVOC	Semi-Volatile Organic Compounds
TACOM	Tank-Automotive and Armaments Command
TMP	Technical Management Plan
TNT	Trinitrotoluene
TRC	Technical Review Committee
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine
USACE	United States Army Corps of Engineers
USAEC	United States Army Environmental Center
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOC	Volatile Organic Compounds

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## Installation Information

**Installation Locale:** Rock Island Arsenal (RIA), located in Rock Island County, Illinois, is a 946.3 acre island in the Mississippi River. The Corps of Engineers occupies 9.5 acres, the Veteran's Administration, which includes the cemetery, occupies 70.3 acres and the Rock Island Arsenal occupies 866.5 acres. The Iowa cities of Davenport (pop. 98,359) and Bettendorf (pop. 31,275) are located immediately north across the Mississippi River. The Illinois cities of Rock Island (pop. 39,684) and Moline (pop. 54,500) are located immediately south of RIA and separated by a channel of the Mississippi River called the Sylvan Slough and the Moline Pool.

**Installation Mission:** Manufacturing, Logistics and Base Operations

**Lead Organization:**

Installation Management Agency, Northwest Region

**Lead Executing Agencies:**

Investigation Phase Executing Agency: Installation and U.S. Army Corps of Engineers (USACE) - Louisville District

**Regulatory Participation**

**Federal:** U.S. Environmental Protection Agency, Region V (not currently active at RIA)

**State:** Illinois Environmental Protection Agency (IEPA)

**National Priorities List (NPL) Status:** Not on NPL

**Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status:** No

RAB/TRC/TAPP has been established at this time.

**Installation Program Summaries**

**IRP**

Primary Contaminants of Concern: Metals, VOCs, SVOCs, Pesticides, POLs, PCBs

Affected Media of Concern: Groundwater, Soil, Surface Water

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 2008/2036

Funding to date (up to FY05): \$ 16,391,300

Current year funding (FY06): \$ 150,000

Cost-to-Complete (FY07+): \$ 12,695,000

### **MMRP**

Primary Contaminants of Concern: MEC, MC, Lead, Arsenic

Affected Media of Concern: Groundwater, Soil

Estimated Date for RIP/RC: 2008

Funding to date (up to FY05): \$ 252,500

Current year funding (FY06): \$ 300,000

Cost-to-Complete (2007+): \$ 0

### **BRAC**

There are no BRAC closure actions at Rock Island Arsenal

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## Cleanup Program Summary

### ***Installation Historic Activity***

Rock Island Arsenal (RIA) is an active IMA Installation. Rock Island Arsenal has three distinct missions comprised of: (1) Manufacture of artillery, gun mounts, recoil mechanisms, small arms and spare parts; (2) Perform tool set and basic issue items (BII) fabrication and assembly for Tank-Automotive and Armaments Command (TACOM); and, (3) Provide administrative, logistical and facility support services for RIA, Headquarters, TACOM, and a number of tenant activities.

The site (RIA) is an island about 3 miles long and 3/4 of a mile wide bound on the north by the Mississippi River, and the south by a channel of the Mississippi River called the Sylvan Slough and Moline Pool. Arsenal Island is divided into three separately owned areas: RIA, 866.5 acres; USACE, 9.5 acres; and the Veterans Administration, 70.3 acres (National Cemetery, 67.3 acres; and a Confederate Cemetery, 3 acres).

Arsenal Island is in the center of the Quad-Cities region, surrounded on all sides by four cities. The land used in the cities consists of: retail, services, administrative, industrial; transportation, wholesaling, warehousing, communications, utility, recreation, exhibition, conservation, and cemetery.

Arsenal Island has been owned and operated by the government since the United States acquired the title to the land in 1804 through a treaty with the Sauk and Mesquakie (Fox) Indians. The U.S. flag flew above the island long before any of the communities of the surrounding area were founded. Even before Illinois and Iowa achieved statehood, the U.S. Army established a significant military presence on the island with the building of Fort Armstrong in 1816. The fort served as a sanctuary to early pioneers who sought refuge behind its walls during the threatening days of the early frontier.

In July 1862, the United States Congress passed an act which established an arsenal on Rock Island. Prior to the construction of permanent arsenal buildings, however, the U.S. Army began building a prisoner of war camp on the island. A total of 12,192 Confederate soldiers were confined at Rock Island during the Civil War years of 1863-1865. Construction of the first manufacturing shop buildings began in 1866 and continued until the last Stone Shop was completed in 1893.

Arsenal Island and the swing span bridge leading to it were nominated to the National Register of Historic Places (NRHP) as an Historic District in 1969. The State Historic Preservation Officer (SHPO) met with the officials from RIA in 1988 to establish contributing structures within the NHRP District.

The historic nineteenth century manufacturing core of RIA was further designated a National Historic Landmark (NHL) District in 1987. The NHL District is composed of two distinct zones: the nineteenth century manufacturing core (Zone 1), and the officers quarters (Zone 2).

The Arsenal has evolved over the years into a center for technical excellence for weaponry and support equipment.

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## Cleanup Program Summary

Completion of — Renovation of Armament Manufacturing (REARM) — a multi-year (1982-1989) modernization project greatly enhanced the physical plant, machine tool inventory, and data processing capabilities. Rock Island Arsenal's tenants include Headquarters, Joint Munitions Command (JMC), Army Field Support Command, Installation Management Activity Northwest Region, Army Tank Biological and Chemical Command, Defense Finance and Accounting Service, Civilian personnel Operations Center, Navy and Marine Corps Reserve Center, and the Defense Reutilization and Marketing Organization.

The USACE owns and operates Lock and Dam No. 15 and maintains a district office on Arsenal Island which is responsible for administrating federal water resource development programs in Iowa, Illinois, Wisconsin, Missouri, and Minnesota.

The Veterans Administration maintains two cemeteries on Arsenal Island. The National Cemetery, located on the eastern end of Arsenal Island, inters U.S. military Veterans, spouses and dependent children. The Confederate Cemetery, situated near the southern border of the island, contains the remains of 1,959 prisoners who died on Arsenal Island during the Civil War.

### **IRP**

- Prior Year Progress: Completed RIA-014 RI report.
- Future Plan of Action: Remedial Actions will be determined and completed by the PBC

### **MMRP**

- Prior Year Progress: Completed the SI.
- Future Plan of Action: The installation plans to complete EE/CA in 2007 and execute follow on phases/actions as required in the individual site cleanup strategies.

# ROCK ISLAND ARSENAL

## Installation Restoration Program

**Total AEDB-R IRP Sites / AEDB-R sites with Response Complete:** 30/28

***Different Site Types:***

1 AST	1 Disposal Pit/Dry Well
1 Contaminated Soil Pile	1 Firing Range
3 Landfill	1 Soil Contamination After Tank Removal
19 Storage Areas	1 Surface Disposal Area
1 Surface Impoundment/Lagoon	1 UST

***Most Widespread Contaminants of Concern:*** Metals, VOCs, SVOCs, Pesticides, POLs, PCBs

***Media of Concern:*** Groundwater, Soil, Surface Water

***Completed Removal (REM)/Interim Remedial Action (IRA)/Remedial Action (RA):***

1989 - UST Removal      \$ 70K

***Total IRP Funding***

Prior years (up to FY05):	\$ 16,391,300
Current year funding (FY06):	\$ 150,000
<u>Future Requirements (FY07+):</u>	<u>\$ 12,695,000</u>
Total:	\$ 29,236,300

***Duration of IRP***

Year of IRP Inception: 1979

Year of IRP RIP/RC: 2008/2036

Year of IRP Completion including Long-Term Management (LTM): Indefinite (LUCs)

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## IRP Contamination Assessment

### *IRP Contamination Assessment Overview*

The Rock Island Arsenal has a total of 31 sites of environmental concern. These sites include industrial and construction debris landfills, storage tanks, quarry, training area, storage areas and burial sites. Three sites are response complete and three are active at this time. 25 sites that were/are in operation are not ER,A eligible. These include 18 accumulation areas that were in operation at the time of the survey.

Since the early 1900's over 40 underground storage tanks (USTs) have been installed at Rock Island Arsenal. The USTs have been used to store a variety of fuels and solvents, including diesel fuels, gasoline, kerosene, dry cleaning solvent, used oil and used water-soluble cutting fluids. To date, 33 USTs have been removed and 7 USTs are being utilized. The remaining 7 EPA compliant USTs are used for gasoline (1), diesel fuel (2), used water-soluble cutting fluid (1), used oil (1), and as reserve for quench oil emergency fire suppressant (2). There are also many above ground diesel fuel storage tanks used for heating and for emergency power.

During the removal of USTs 8, 9, 10, and 11 soils contaminated with chlorinated solvents were identified. The soil in the immediate area was removed and monitoring wells were installed downgradient. No further contamination of this site (RIA-002) has been observed.

In 1979, an Installation Assessment of RIA was conducted by United States Army Toxic and Hazardous Materials Agency. This assessment was to evaluate the environmental quality of RIA with regard to the use, storage, treatment, and disposal of toxic and hazardous materials and to define any conditions that may adversely affect health and welfare or result in environmental degradation. Thirty-one sites were listed as potentially contaminated sites. (Currently, this list has been narrowed down to the three open actions, the test range, the plume from an underground tank removal south of building 250, and the Old Landfill site.)

In 1987, an Update of the Initial Assessment of RIA was conducted to determine if conditions had changed. This report indicated a clay cap has been placed over the landfill. However, the need to investigate all contaminants is required by the Army. At this point, the three remaining sites became part of the RIA Installation Restoration Action Plan for cleanup.

There are a total of 65 monitoring wells on RIA. The wells are associated with the landfills, the POL/UST areas, the quarry, building 64 RCRA closure, and background areas. After the major Mississippi River flood in 1993 all of the monitoring wells were sampled. There were some changes from previous sampling results. The area of major concern is the landfill, site RIA-001, because of semi-volatile organics. The results identified an increased potential for off-site contamination and ER,A funding was available for the Phase II Remedial Investigation (RI), a draft FS, Technical Management Plan Phase II RIA with a Risk Assessment and a Ground Water Classification Investigation (GWCI). The Technical Management Plan (TMP) is useful for future investigations requiring only modifications and updating. The TMP, which includes the Community Relations Plan (CRP), was completed in FY97.

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## IRP Contamination Assessment

The GWCI was completed in November 1997 and it will be used for determining the basic cleanup objectives not only for the landfill site, RIA-001, but for all sites on Rock Island Arsenal.

RIA is currently a large-quantity 90 day generator of hazardous waste. A Part B permit Application was withdrawn and the Hazardous Waste Container Storage Unit was properly closed. It is now used as an accumulation area.

The RIA water treatment facility processes Mississippi River water. Modifications which allow the use of chlorine and ammonia as disinfectant were completed in 1995. The modified Potable Water Treatment Plant has been in compliance since its inception.

RIA sends its sanitary effluent to the City of Rock Island POTW; the permit with the city includes total effluent and two pretreatment industrial wastewater facilities. The RIA has a general NPDES for storm water. RIA has a Nuclear Regulations Commission materials license for storage and usage of radioactive material. The main sources are thorium and tritium.

RIA has 19 IEPA permits for 191 air emission sources, all of which have been submitted under the Title V section of the Clean Air Act. The Title V application was approved by IEPA for use as blanket coverage for all air permits on RIA that are listed in the application until the permit was approved in 2001. RIA is in the process of renewing its Title V Permit as of Apr 2006.

A small business performance based contract was awarded in Sep 04 which upon its successful completion will achieve RC for Installation Restoration Program at Rock Island Arsenal. LTM, which includes LUCs, is expected.

A RI phase for Site 014, UST-34, was completed in 2006.

### ***IRP Cleanup Exit Strategy***

A performance based contract has been awarded to complete the remedial action phase of the restoration program at Rock Island Arsenal (RIA). The contractor will complete the Feasibility Study for Site 001, the Old Landfill, and Site 014, the former UST 34. From that document a recommended remedy will be pursued.

The remedy for the Old Landfill will likely be cover, stream bank stabilization, source remedial action, and planting vegetation. The remedy for site UST-34 will likely be monitored natural attenuation.

The assumptions made for Site-014 are that there is no ecological or human health risks above state criteria. The assumptions made for Site-001 are that some source control measures will be required by the state and those measures will be identified in the feasibility study and the state will concur.

### 1979

- Installation Assessment of Rock Island Arsenal Report No. 164. Prepared by US Army Toxic and Hazardous Materials Agency (USATHAMA), December 1979.
- Water Pollution Study for RIA. Prepared by USACE, Contractor: Harland Bartholomew and Associates, Northbrook, Illinois, March 1979.

### 1988

- Interim Report, Groundwater Contamination Survey No. 38-26-0308-89, Evaluation of Solid Waste Management. Prepared by US Army Environmental Hygiene Agency (AEHA), May 1988.

### 1989

- Geohydrologic Study No. 38-26-8814-90, RCRA Facility Assessment Sampling Investigation, RIA. Prepared by AEHA, May 1989.

### 1996

- Installation Assessment Relook Program, Working Document. Prepared by USATHAMA, August 1996.

### 1998

- Update of the Initial Installation Assessment of RIA. Prepared by USATHAMA, July 1998.

### 1991

- POL Facility Investigation of Leaking Underground Storage Tanks, RIA. Prepared by Daily and Associates, D&A, May 1991.

### 1992

- Guidance Document for Renovation/Demolition of Buildings 65 and 106, RIA. Prepared by COE Contractor: TCT-St. Louis, St. Louis, Missouri, January 1992.
- Site Investigation in Support of the Closure of the Building 33 Hazardous Waste Management Unit, RIA. Prepared by Daily and Associates, D&A, February 1992.
- Building 251/254 Site Investigation (Former TNT Building), Rock Island Arsenal Final Report, D&A, Engineers Inc., Peoria, Illinois. Prepared by Daily and Associates, D&A, May 1992.

### 1993

- Specification Number 3230-2008. PR Number 8-91, Environmental Cleanup Buildings 64, RIA. Prepared by COE Contractor: TCT-St. Louis, St. Louis, Missouri, May 1993.

- Addendum No. 1 Site Investigation in Support of Closure of the Building 33 Hazardous Waste Management Unit, RIA. Prepared by Daily and Associates, D&A, December 1993.

### 1994

- Groundwater Quality Consultation No. 38-66-kv27-94, Phase I & II, RIA 13-18 September 1993 and 1-5. Prepared by AEHA, February 1994.

### 1997

- Technical Management Plan for the RIA. Prepared by USACE Contractor: Science Applications International Corporation, Oak Ridge, Tennessee, May 1997.
- Phase I Remedial Investigation Report, Old Landfill, RIA. Prepared by USACE Contractor: Maxim Technologies Inc., St. Louis, MO, May 1997.
- Installation Restoration Program, Community Relations Plan. Prepared by USACE Contractor: Science Applications International Corporation, Oak Ridge, Tennessee, August 1997.

### 1999

- Phase II Remedial Investigation Report, Old Landfill, RIA. Prepared by USACE Contractor: Science Applications International Corporation, Oak Ridge, Tennessee, December 1999.
- Extended Site Inspection Report, the Old Quarry Site. Prepared by US Army Center for Health Promotion and Preventative Medicine, September 1999.

### 2000

- Remedial Investigation, Old Quarry Site. Prepared by US Army Center for Health Promotion and Preventative Medicine, July 2000.

### 2001

- Work Plan for Additional Investigations in support of the FS at the RIA Old Landfill. Prepared by USACE Contractor: Science Applications International Corporation, Oak Ridge, Tennessee, July 2001.
- Well Installation Plan for the RIA Time Critical Removal Action for LNAPL. Prepared by USACE: Tetra Tech NUS, Oak Ridge, July 2001.

### 2002

- Well Installation Plan Addendum for Soil Vapor Extraction Pilot Test Old Landfill. Prepared by USACE: Tetra Tech NUS, Oak Ridge, March 2002.
- Phase I Remedial Investigation Report and Proposed Phase II Sampling UST 34, Old Landfill, RIA. Prepared by Daily and Associates, D&A, March 2002.

### 2002 (continued)

- A contract was awarded, by the USACE Nashville District in Sept 2002 to TetraTech NUS for the Remedial Action required to close the Old Quarry site.
- Mussel Survey in Sylvan Slough RIA Old Landfill – Final, Prepared by USACE Contractor: Science Applications International Corporation, Oak Ridge, Tennessee, August 2002
- EECA for Quarry, August 2002
- Phase I Remedial Investigation Report and Proposed Phase II Sampling UST 34, Old Landfill, RIA. Prepared by Daily and Associates, D&A, September 2002.
- Soil Vapor Extraction Pilot Test Summary Report, Landfill, September 2002
- Addendum to the Ecological risk Assessment – Draft, October 2002
- Addendum to the Data Summary Report for Add. Investigation of the FS, November 2002
- Work Plan Amendment no. 3 for the POC Sampling, December 2002

### 2003

- The Additional Investigation Report for the Old Landfill, dated May 2003, was prepared and submitted by SAIC under the Nashville District contract.
- A draft Feasibility Study for the Old Landfill, dated June 2003, was prepared and submitted by SAIC under the Nashville District contract.
- The Data Summary Report for Year 2002/2003 Point of Compliance Monitoring at the Rock Island Arsenal Old Landfill was completed in August 2003 by SAIC under the Nashville District contract.
- The Final Addendum to the Ecological Risk Assessment for the Old Landfill, dated December 2003, was prepared and submitted by SAIC under the Nashville District contract.
- RA Work Plan Quarry – Draft, May 2003
- Passive Soil Vapor Test Report to IEPA, August 2003
- RA Safety and Health Plan, Quarry, July 2003

### 2004

- The Removal Action Report for the Old Quarry was completed in Feb 2004 by TetraTech NUS and accepted by the IEPA in Apr 2004.
- Via letter dated April 19, 2004 the IEPA stated no further action is required for the Old Quarry site.
- A Performance Based Contract (PBC) was awarded, by the Northern Region Contracting Center (NRCC) on behalf of the US Army Environmental Center, in Sept 2004 to TolTest to obtain RIP/RC for the Old Landfill and UST-034 sites.
- Project Management Plan under PBC - Draft, November 2004
- Quality Assurance Strategic Plan, Draft, December 2004

### 2005

- The Removal Action Report for the Old Quarry was completed in Feb 2004 by TetraTech NUS and accepted by the IEPA in Apr 2004.
- The Data Summary Report for Year 2004 Point of Compliance Monitoring at the Rock Island Arsenal Old Landfill was completed in May 2005 by SAIC under the Nashville District contract.
- The Summary Interim Report, Environmental Evaluation and Site Closure Activities for the Remediation of RIA-0014 (UST-34), dated May 2005 is submitted by the PBC contractor (TolTest)
- The Final Second Summary Interim Report, Environmental Evaluation and Site Closure Activities for the Remediation of RIA-0014 (UST-34), dated November 2005 is submitted by the PBC contractor (TolTest)
- Work Plan – 2005 Compliance Monitoring & UST-34 Monitoring, Draft Final, January 2005
- Work Plan – Bedrock Well Installation & Sampling & Analysis, Draft Final, January 2005
- USFWS Effect Assessment, Proposed Remedial Action, Old Landfill, Draft, February 2005

### 2006

- The Draft Final Work Plan Amendment #7 is prepared by the PBC contractor (TolTest) and submitted to the IEPA for 2006 Compliance Sampling Activities at the Old Landfill.
- The Data Summary Report for Year 2004 Point of Compliance Monitoring at the Rock Island Arsenal Old Landfill was completed in May 2005 by SAIC under the Nashville District contract.

# ROCK ISLAND ARSENAL

## Installation Restoration Program Site Descriptions

# RIA-001 (PAGE 1 OF 3)

## OLD LANDFILL

### SITE DESCRIPTION

The Old Landfill occupies approximately 20 acres in the south central part of RIA. Historical records have indicated that a variety of wastes generated by the industrial processes at RIA were potentially disposed of in the Old Landfill during its active life. Historical records have also indicated that the Old Landfill was active between 1920 and 1965. Waste oils, solvents, and other liquids were poured into pits and either burned or allowed to percolate into the ground. Additionally, industrial wastes, including degreaser sludges, heat-treating salts, electroplating solutions, sludges, and wastewaters from operation on RIA were disposed of in this area.

In 1978, a Water Pollution Study was conducted by Harland Bartholomew and Associates to evaluate the potential seepage of pollutants from the landfill. Five wells were installed and leachate was extracted and tested. A significant amount of oil was found as well as elevated levels of iron, zinc, and nickel, but it was surmised that the probability of significant movement of heavy metals and oil to the slough was very small.

In 1979, an Installation Assessment of RIA was conducted by USATHAMA. This assessment was to evaluate the environmental quality of RIA with regard to the use, storage, treatment, and disposal of toxic and hazardous materials and to define any conditions that may adversely affect health and welfare or result in environmental degradation. Thirty-one sites were listed as potentially contaminated sites. (Currently, this list has been narrowed down to three open actions, the Quarry site around the test rack, the plume from an underground tank removal south of building 250, and the Old Landfill site.)

In 1987, an update of the Initial Assessment of RIA was conducted to determine if conditions had changed. This report indicated a clay cap has been placed over the landfill, however, the need to investigate all contaminants is required by the Army. At this point, the three remaining sites became part of the RIA Installation Restoration Action Plan for cleanup. The USACE, Nashville District was hired to act as the project manager for the cleanup of the landfill.

In 1994 and 1995, a Phase I remedial investigation was conducted by the subcontractor Maxim Technologies.

### STATUS

**REGULATORY DRIVER:** CERCLA

**RRSE:** High

**CONTAMINANTS OF CONCERN:**  
VOCs, SVOCs, Pesticides, POL,  
PCBs, Metals

**MEDIA OF CONCERN:**  
Surface Water, Groundwater, Soil

Phases	Start	End
PA.....	197902 .....	197912
SI .....	198805 .....	198805
RI/FS .....	199404 .....	200406
RD .....	200405 .....	200406
RA(C).....	200409 .....	200712
RA(O) .....	200801 .....	203612

**RIP DATE:** 200801

**RC DATE:** 203612

**SITE DESCRIPTION**

The overall objective was to assess the nature of the contamination present at the landfill. In addition to a search of historical records, a topographic survey, site maps, magnetometer sweep, geophysical survey, sampling and analysis of soil and water, permeability testing groundwater elevation, installation of monitoring wells, and other items were performed.

In 1996, the XYZ Fire Training Area (RIA - 003) was combined with the Landfill (RIA - 001) per guidance from the US Army Environmental Center (USAEC). The XYZ area was three rows of ten buildings where fire training activities were carried out. The training consisted of fire training personnel using wood and other combustible materials during training exercises inside the buildings. The training was discontinued in 1982. There is no evidence of the use of solvents or fuels. The site was covered with grass after the buildings were removed. Portions of the area have been used for equipment storage and parking.

In 1997 and 1998, a Phase II remedial investigation was conducted by the subcontractor Science Applications International Corporation. The field activities associated with this investigation included obtaining additional characterization data to complement the Phase I results, support the baseline human health risk assessment and ecological risk assessment, and define the extent of contamination with respect to the hot spots.

In December 1999, a Final Remedial Investigation Report was prepared by the USACE, Nashville District. The recommendations in the report stated the following: The nature and extent data and risk assessment findings should be used in the feasibility study to develop remedial alternatives for the Old Landfill. IEPA-developed alternate concentration limits (ACLs) should be used as remediation goals for groundwater and applied at the point of compliance as part of a long-term groundwater monitoring program. The ACLs should also be used to back-calculate soil cleanup levels for the Old Landfill contaminants of concern.

In March 2000, a Draft Feasibility Study was prepared by the USACE, Nashville District indicating 11 alternatives to close the site. After a screening evaluation of the alternatives, five site-wide alternatives were retained. Based on the detailed evaluation in the feasibility study, alternative 4, capping combined with hot spot removal, product recovery. This cost estimate is above the previous estimate as all parameters of the cleanup were not known at the time the previous estimate was made.

In June 2000, an Internal Technical Review by the Army Environmental Center was conducted on the Old Landfill Project at RIA. The purpose of the oversight group is to review projects to ensure that installations are attaining the appropriate level of risk reduction while maximizing the effective and efficient use of environmental restoration funds. The Internal Technical Review team is not a decision-making body. They serve only to advise and provide recommendations to the installation. A draft report was received and reviewed by RIA, the USACE, Nashville District, and the IEPA. A final report of recommendations was written and sent to the installation in FY2001.

## **SITE DESCRIPTION**

Also in FY2001, further sampling and analysis of the slough bank was conducted to determine groundwater discharge points. Additionally, skimming of free product from one of the wells that showed free product, installation of compliance wells, and a mussel survey was conducted.

In FY2002, a draft report from the mussel survey conducted in the slough adjacent to the landfill was completed. The final report from the mussel survey was sent out for comment to the Natural Resource trustees in Feb 2002. At that time, a determination will be made on any further remediation action deemed necessary to protect any impacted mussel species.

In April 2002, a soil vapor extraction pilot study was conducted and any bulk free product found in the wells in question was pumped out. This pilot study was used to extract contamination from the soil in specific locations on the landfill. The results of test indicated Soil Vapor Extraction (SVE) was not a viable option. The compliance wells were sampled on a quarterly basis to determine the level of contamination at those points.

The feasibility study was drafted in FY2002 and was submitted to IEPA. Comments were received and the new PBC contractor is responsible for addressing the comments.

In 2004, under the newly awarded PBC, the contractor began the process to revise the FS. The FS report will include the data from the mussel survey, soil vapor extraction pilot study and an ESA effects analysis and ecological risk addendum. Coordinated with Fish and Wildlife to discuss conservation measures. Continued to monitor the point of compliance wells. Wells no longer needed were abandoned.

## **CLEANUP STRATEGY**

Performance Based Contract was awarded in FY04. RIP is projected in December 2007.

Complete FS (expect approval by Sep 06) and select and implement remedy. With current information, the RA is expected to address VOC hot spots/groundwater, provide soil cover for the ~20 acre landfill and provide erosion control/bank stabilization (~1 mile). Continue to monitor the point of compliance wells. Following the RA, cover maintenance and monitoring will follow. LUCs are anticipated to be required indefinitely and will be incorporated in the base-wide Master Plan.

# RIA-014 UST (34)

## SITE DESCRIPTION

RIA-014 is a former site near buildings 250, 251, and 254. During the removal of UST 34 contamination was discovered. An interim remedial action removed about 200 cubic yards of contaminated soil in conjunction with the removal of the abandoned UST in 1989. The soil was sent to a permitted landfill manifested as special waste.

A RI was completed, and the plume migration pathways have been identified. Polynuclear Aromatic (PNA) hydrocarbons were the initial contaminants of concern. TCE has been subsequently discovered at relatively low levels. Additional investigation was completed to delineate the soil contamination and groundwater plume.

Low level detects of explosives have been found in soils. WWI Melt and Pour Facility is the probable source of the explosive contaminants identified.

The draft final RI report has been written, reviewed by IEPA and final revisions are in progress.

## CLEANUP STRATEGY

Performance Based Contract was awarded in FY04. RC is projected in December 2007.

Complete FS (expect approval by Sep 06) and select and implement remedy. With current information, the RA is expected to be MNA. Continue to monitor wells. Five year review is scheduled in 2012.

Additional localized removal of contaminated soil may be required and/or LTM. LUCs are anticipated to be required indefinitely or until regulatory concurrence of site closure. LUCs will be incorporated into the base-wide Master Plan and a LUC-MOA.

## STATUS

**REGULATORY DRIVER:** CERCLA

**RRSE:** Low

**CONTAMINANTS OF CONCERN:**  
POL, SVOCs

**MEDIA OF CONCERN:**  
Soil, Groundwater

Phases	Start	End
PA.....	198606 .....	198612
SI .....	199901 .....	199909
RI/FS .....	200001 .....	200601
IRA.....	199205 .....	200510
RA(C).....	200602 .....	200610
RA(O) .....	200609 .....	200712
LTM .....	200910 .....	203712

**RIP DATE:** 200610

**RC DATE:** 200712

## IRP No Further Action Sites Summary

AEDB-R #	Site Title	Documentation/Reason for NFA	NFA Date
RIA-002	Proposed UST 29-32	Not Eligible For ER,A/BRAC Funding	198809
RIA-004	Ash Pile	Not Eligible For ER,A/BRAC Funding	198805
RIA-005	AST At Building 222 Temporary	Not Eligible For ER,A/BRAC Funding	198805
RIA-006	Landfill Construction Debris	Not Eligible For ER,A/BRAC Funding	198805
RIA-008	Old Quarry Filled With Water	Response Complete	200404
RIA-009	Burial Site NE Building 342	Study Completed, No Cleanup Required	198805
RIA-010	Former Shellbreaker & Present DRMO Storage	Study Completed, No Cleanup Required	198805
RIA-011	Casing Burial Area/Munitions Burial	Study Completed, No Cleanup Required	198805
RIA-012	Hazardous Waste Storage Area Building 242	Not Eligible For ER,A/BRAC Funding	198805
RIA-013	Hazardous Waste Storage Satellite/Accumulation Areas (A-T)	Not Eligible For ER,A/BRAC Funding	198805

**Initiation of IRP:** 1979

### **Past Phase Completion Milestones**

#### **1979- 1988**

IRP PA Initiation, Dec  
PA/SI, Installation , Jul

#### **1997- 1999**

RI/FS Phase I (RIA-001), Jun  
Community Relations Plan, Aug  
Groundwater Classification, Sep  
RI/FS Phase II (RIA-001), Sep

#### **2000**

Draft FS (RIA-001), Feb  
2nd Draft FS (RIA-001), Mar

#### **2001**

RI/FS Work Plan (-014), Feb  
Well Installation Plan (RIA-001), Jul  
RI/BRA (RIA-001), Dec

#### **2002**

Summary Report - Additional Sampling (RIA-001), Mar  
Well Installation Plan Addendum - Soil  
Vapor Extraction Pilot Test (-0010), Mar  
Phase I RI Report (RIA-014), Mar  
Mussel Survey (RIA-001), Aug  
EE/CA for OQ Site (-008), Aug  
RI/FS Report Ph I/A/Proposed Phase II (-014), Sep  
Draft OQ RA Sampling/Anal Plan (-008), Nov  
Addendum to the Data Summary Report for Additional Investigation in support of the FS (-001)  
Work Plan Amendment No 3 for POC Sampling (-001), Dec

#### **2003**

Range Inventory Report (-001), Jan  
Draft OQ Removal Report (-001), May  
Additional Investigation Report (-001), May  
Phase I investigated 29 sites, RIA-001 through RIA-014.  
3rd Draft FS (-001), Jun  
Final Addendum to the Ecological Risk Assessment (-001), Dec

#### **2004**

PBC awarded, Sep

***Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates:***  
Unknown

***Schedule for Next Five-Year Review:*** 2012

***Estimated Completion Date of IRP (including LTM phase):*** Indefinite (LUCs)

# Rock Island Arsenal IRP Schedule

(based on required funding)

AEDB-R #	Phase	FY07	FY08	FY09	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
RIA-001	RA(C)										
	RA(O)										203612
RIA-014	RA(O)										
	LTM										203712

***Prior Years Funds*****Funding up to FY04: \$ 9,089K****FY05 Prior Year Funding**

<b>Site Information</b>	<b>Expenditures</b>	<b>FY Total</b>
PBC, RIA-001	\$6,969.3K	
PBC, RIA-014	\$254.3K	
RIA-014	\$68.7K	<b>\$7,302.3K</b>

**Total Prior Year Funding: \$16,391.3K*****Current Year Requirements***

<b>Site Information</b>	<b>Expenditures</b>	<b>FY Total</b>
	\$150K	<b>\$150K</b>

**Total Future Requirements: \$12,695K****Total IR Program Cost (from inception to completion of the IRP): \$29,236.3K**

# ROCK ISLAND ARSENAL

## Military Munitions Response Program

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## MMRP Summary

**Total AEDB-R MMRP Sites/AEDB-R sites with Response Complete:** 1/0

**AEDB-R Site Types**

1 Firing Range

**Most Widespread Contaminants of Concern:** Arsenic, Lead, MEC/MC

**Media of Concern:** Groundwater, Soil

**Completed REM/IRA/RA:**

None

**Total MMRP Funding**

Prior years (up to FY05):	\$ 252,500
Current Year (FY06):	\$ 300,000
Future Requirements (FY07+):	\$ 0
Total:	\$ 552,500

**Duration of MMRP**

Year of MMRP Inception: 2002

Year of MMRP RIP/RC: 2008

Year of MMRP Completion Including LTM: 2008

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## MMRP Contamination Assessment

### ***MMRP Contamination Assessment Overview***

The MMRP was initiated in 2002. The Army Range Inventory that identified MMRP sites at RIA was completed in 2003. See “Final Closed, Transferring, and Transferred Range/Site Inventory Report” dated January 2003 for details.

The report identified 1 MMRP eligible site with MEC/MC contamination. No off-post contamination was identified.

Installation-wide MMRP Site Inspection report was finalized and approved in February 2005. The MMRP SI report concluded that the potential MEC/MC issues at site RIA-001-R-01 are most likely contained within the perimeter of the site and particularly within the two bunkers.

### ***MMRP Cleanup Exit Strategy***

The MMRP team anticipates that the EE/CA will recommend the sand and soil in the bunkers be removed and screened for MEC. Groundwater monitoring may be required.

### 2003

- Final Closed, Transferring, and Transferred Range/Site Inventory report, Jan

### 2005

- Final Site Inspection Report, Feb

# ROCK ISLAND ARSENAL

## Military Munitions Response Program Site Descriptions

# RIA-001-R-01 (PAGE 1 OF 2)

## TEST RANGE

### SITE DESCRIPTION

The Test Range consists of Buildings 44 and 45, two large, steel-lined, concrete bunkers with openings containing sand traps. The bunkers have been constructed into an earthen berm, which additionally acts as a levy to the Mississippi River. The total area of this site is 0.09 acres. The bunkers are co-located on the extreme eastern side of the island within the test area or "Proving Ground." Although not a numbered structure, a feature that appears to be a berm is depicted at the current location of the bunkers on a Rock Island Arsenal and Vicinity map dated 1894. The map date coincides with the completion of the Rock Island Arsenal shops and period in which the arsenal was producing rifle and howitzer components. It is inferred from the information reviewed during the site visit that a berm was located at the site and used to test rifle and howitzer components through the use of either live or dummy ammunition. It is not known with certainty when the bunkers were constructed at the site, but they appear to be of World War I or World War II vintage. The bunkers were built into the existing berm to capture projectiles that were fired from a fixed position to test tank and/or artillery components. Dummy projectiles shaped out of wood or filled with sand were fired through the open air into the bunkers. To the best knowledge of those interviewed, the testing that occurred within the concrete bunkers involved the exclusive use of these dummy rounds. However, employees within the test area report that Explosive Ordnance Disposal (EOD) historically used the bunkers when responding to UXO incidents on Rock Island. No documentation was available to determine the types of ordnance that may have been destroyed in the bunkers or the donor charges that may have been used. It is additionally possible that the earthen berms that now act as the backstop for the bunkers once comprised the original test berm. This berm may have been used for testing small arms ammunition.

Insufficient data are available to determine the types or amount of munitions or ordnance that may be contained within the sand traps and berms, or lodged within the bunkers. Although it can be assumed that the sand traps were, at times, mined or completely removed and replaced, no records were available to determine the frequency or the sand disposal location. A visual inspection of the bunkers was conducted during the site visit. A large number of spent dummy rounds were visible on the surface.

### STATUS

**REGULATORY DRIVER:** CERCLA

**RAC SCORE:** Moderate Risk

**CONTAMINANTS OF CONCERN:**  
Lead, Arsenic, MEC/MC

**MEDIA OF CONCERN:**  
Soil, Groundwater, Surface Water

Phases	Start	End
PA.....	200208 .....	200305
SI .....	200309 .....	200503
<b>RI/FS .....</b>	<b>200606 .....</b>	<b>200812</b>
RD .....	200606 .....	200812
RA(C) .....	200606 .....	200812

**RC DATE:** 200812

### **SITE DESCRIPTION**

The metal casings are heavily rusted, and a determination of whether they were live or dummy could not be made. EOD expertise is required to examine the contents of the sand traps and conduct safe removal.

Although the test range had not been in active use for a number of years, it remained in inactive status until the time of the CTT inventory site visit, at which time Mr. Dave Bailey, Chief of Science and Engineering, made a determination to permanently close the bunkers.

Installation-wide MMRP Site Inspection report was finalized and approved in February 2005. The MMRP SI report concluded that the potential MEC/MC issues at site RIA-001-R-01 are most likely contained within the perimeter of the site and particularly within the two bunkers.

### **CLEANUP STRATEGY**

EE/CA removal action is expected to begin in FY06.

***Initiation of MMRP:*** 2002

***Past Phase Completion Milestones***

**2005**

•SI, Feb

***Projected ROD/DD Approval Dates:*** None

***Projected Construction Completion:*** 2008

***Schedule for Five Year Reviews:*** None

***Estimated Completion Date of MMRP including LTM:*** 2008

# Rock Island Arsenal MMRP Schedule

(based on required funding)

AEDB-R #	Phase	FY07	FY08	FY09	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
RIA-001-R-001	RI/FS										
	RD										
	RA(C)										

All phases are funded with FY06 dollars

## MMRP Costs

### *Prior Years Funds*

**Funding up to FY04: \$ 240K**

Year	Site Information	Expenditures	FY Total
FY05	SI	\$ 12.5K	\$ 12.5K

**Total Prior Year Funds: \$ 252.5K**

### *Current Year Requirements*

Year	Site Information	Expenditures	FY Total
FY06		\$ 300K	\$ 300K

**Total Future Requirements: \$ 0K**

**Total MMR Program Cost (from inception to completion of the MMRP): \$ 552.5K**

RIA is in the process of surveying the local community to determine whether there is sufficient interest in developing a RAB as of April 2006.